

THE INVENTION CLAIMED IS:

1           1.    A method of deskewing parallel data streams,  
2    comprising:  
3            receiving a plurality of data streams;  
4            storing each of the received data streams in a  
5    respective buffer;  
6            detecting synchronization signals in the data  
7    streams; and  
8            controlling the buffers to read out the stored  
9    data streams on the basis of the detected synchronization  
10   signals.

1           2.    The method of claim 1, wherein the plurality  
2    of data streams consists of two data streams.

1           3.    The method of claim 1, wherein the detecting  
2    step includes reading synchronization signals in the data  
3    streams stored in the buffers.

1           4.    The method of claim 1, wherein the  
2    controlling step includes controlling respective read  
3    pointers of the buffers to simultaneously point at  
4    synchronization signals stored in the buffers.

1           5.    The method of claim 1, wherein each of the  
2    data streams is received via a respective receiver port.

1           6.    The method of claim 5, wherein each of the

2 data streams is received via a respective optical fiber.

1 7. A method of deskewing parallel data streams,  
2 comprising:

3 receiving a plurality of data streams;

4 storing each of the received data streams in a  
5 respective buffer;

6 comparing respective timings of the received data  
7 streams; and

8 controlling read pointers of the buffers on the  
9 basis of a result of the comparing step.

1 8. The method of claim 7, wherein the comparing  
2 step includes reading synchronization signals from the data  
3 streams stored in the buffers.

1 9. The method of claim 7, wherein the plurality  
2 of data streams consists of two data streams.

1 10. The method of claim 7, wherein each of the  
2 data streams is received via a respective receiver port.

1 11. The method of claim 7, wherein each of the  
2 data streams is received via a respective optical fiber.

1 12. The method of claim 7, wherein the  
2 controlling step includes controlling respective read  
3 pointers of the buffers to simultaneously point at  
4 synchronization signals stored in the buffers.

1           13. An apparatus adapted to deskew parallel data  
2 streams, comprising:

3           a first port adapted to receive a first data  
4 stream;

5           a second port adapted to receive a second data  
6 stream;

7           a first buffer coupled to the first port and  
8 adapted to store the received first data stream;

9           a second buffer coupled to the second port and  
10 adapted to store the received second data stream; and

11          a deskew circuit coupled to the first and second  
12 buffers and operative to:

13           detect synchronization signals in the first  
14 and second data streams; and

15           control the first and second buffers to read  
16 out the stored first and second data streams on the basis of  
17 the detected synchronization signals.

1           14. The apparatus of claim 13, wherein the deskew  
2 circuit detects the synchronization signals by reading the  
3 synchronization signals in the first and second data streams  
4 respectively stored in the first and second buffers.

1           15. The apparatus of claim 13, wherein the first  
2 buffer, the second buffer and the deskew circuit are  
3 implemented in a programmable logic device or an application  
4 specific integrated circuit.

1           16. The apparatus of claim 13, wherein the first  
2 port is coupled to a first optical fiber and the second port  
3 is coupled to a second optical fiber.

1           17. The apparatus of claim 13, wherein the deskew  
2 circuit controls respective read pointers of the first and  
3 second buffers to simultaneously point at synchronization  
4 signals stored in the first and second buffers.

1           18. An apparatus adapted to deskewing parallel  
2 data streams, comprising:

3           a first port adapted to receive a first data  
4 stream;

5           a second port adapted to receive a second data  
6 stream;

7           a first buffer coupled to the first port and  
8 adapted to store the received first data stream;

9           a second buffer coupled to the second port and  
10 adapted to store the received second data stream; and

11           a deskew circuit coupled to the first and second  
12 buffers and operative to:

13           compare respective timings of the received  
14 first and second data streams; and

15           control read pointers of the buffers on the  
16 basis of a result of the comparison of the respective  
17 timings of the received first and second data streams.

1           19. The apparatus of claim 18, wherein the first  
2 buffer, the second buffer and the deskew circuit are

3 implemented in a programmable logic device or an application  
4 specific integrated circuit.

1 20. The apparatus of claim 18, wherein the first  
2 port is coupled to a first optical fiber and the second port  
3 is coupled to a second optical fiber.

1 21. The apparatus of claim 18, wherein the deskew  
2 circuit controls respective read pointers of the first and  
3 second buffers to simultaneously point at synchronization  
4 signals stored in the first and second buffers.

1 22. A method of deskewing parallel data streams,  
2 comprising:  
3 providing a pair of buffers, each for storing a  
4 respective one of the data streams;  
5 reading out respective signals from at least one  
6 of the pair of buffers;  
7 determining that one of the signals read out from  
8 one of the buffers is a synchronization signal; and  
9 responsive to the determining step, holding a read  
10 pointer of the one of the buffers from which the  
11 synchronization signal was read out until a synchronization  
12 signal is read out from the other one of the buffers.

1 23. An apparatus for deskewing parallel data  
2 streams, comprising:  
3 a first port for receiving a first data stream;  
4 a second port for receiving a second data stream;

5           a first buffer coupled to the first port for  
6 storing the received first data stream;  
7           a second buffer coupled to the second port for  
8 storing the received second data stream; and  
9           a deskew circuit coupled to the first and second  
10 buffers and operative to:  
11           read out respective signals from at least one  
12 of the first and second buffers;  
13           make a determination that one of the signals  
14 read out from one of the buffers is a synchronization  
15 signal; and  
16           respond to the determination by holding a  
17 read pointer of the one of the buffers from which the  
18 synchronization signal was read out until a synchronization  
19 signal is read out from the other one of the buffers.